

## The Role of Peers in the Emergence of Heterosexual Romantic Relationships in Adolescence

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Adolescents' peer structures and the quality of their friendships were explored as antecedents of romantic relationships. Longitudinal data were gathered in a sample of 180 high school students over a 3-year period from grade 9 to grade 11. Consistent with Dunphy (1963), small groups of close friends were predictive of other-sex peer networks which were, in turn predictive of the emergence of future romantic relationships. Indirect effects were found for same-sex groups of close friends and same-sex networks. Consistent with Furman and Wehner (1994), the qualitative features of relationships with both friends and romantic partners were predictive of the qualitative features of subsequent romantic experiences. These linkages suggest ways in which peer relationships may support romantic development at this stage of the life cycle.

### INTRODUCTION

Throughout the course of development, social networks are central to the structure and quality of interpersonal relationships. Social networks facilitate their members' contacts with one another and they shape the quality of social interactions within the groups (Belle, 1989). Adolescents' social networks are characterized by two distinguishing features. First, peers come to the forefront of the social network. The number of peers in the network increases and they are turned to more often to fulfill various functions (Blyth, Hill, & Thiel, 1982; Furman & Buhrmester, 1992). Second, heterosexual romantic relationships begin to emerge (Dickinson, 1975; Hansen, 1977; Sorenson, 1973). Although these two characteristics of adolescent social networks are well known, as yet we know little about how they may be related to each other. The goal of this study is to explore how the emergence and quality of heterosexual romantic relationships might be facilitated by adolescents' peer networks.

Heterosexual romantic relationships emerge gradually over the course of adolescence. Early on, many young adolescents express keen interest in romance yet for the most part their actual participation in such relationships is quite infrequent (Connolly, Craig, Goldberg, & Pepler, 1999). The middle years of adolescence are an important period of transition. By the age of 15 or 16, 40% to 50% of adolescents report a current romantic relationship (Feiring, 1996) and by late adolescence most young people will have experienced a romantic involvement of some degree of intensity (Dickinson, 1975; Hansen, 1977; Sorenson, 1973). The developmental roots of these relationships have recently become the focus of study and qualitative features of relationships within the family and with friends have been linked to romantic involvement

(Furman & Wehner, 1997; Laursen & Williams, 1997). The salience of the connections between adolescents' romantic involvements and their relationships with their agetates has underscored the need to examine romantic relationships within the broader context of adolescents' peer networks (Furman & Wehner, 1997; Laursen & Williams, 1997).

Dunphy's (1963) functional analysis of adolescents' peer groups provides some insights into the manner in which they might support romantic involvement. He identified two peer structures that are particularly characteristic of the adolescent period: small groups of same-sex close friends, which he labeled cliques, and large mixed-sex networks, which he labeled crowds. These peer structures differ not only in size but also in their developmental functions. He proposed that same-sex cliques of boys and girls first merge to form mixed-sex cliques. Several of these mixed-sex cliques then join together in close association to form mixed-sex crowds and these crowds replace the cliques as the locus of adolescent psychosocial development. Dunphy argued that a primary function of cliques is to support the formation of crowds, whereas it is the function of these mixed-sex peer crowds to channel adolescents' heterosexual development by providing access to romantic partners and a context in which preliminary patterns of dating can be initiated.

Dunphy's (1963) theory was developed on the basis of ethnographic research of a cohort of adolescents in an Australian city. Participant observation of their daily activities supported his description of two differently sized peer structures and his formulation of a developmental progression from the small group of close friends to the larger network of peers. Further

support for his theory is provided by Connolly and Johnson's (1996) finding that adolescents with large networks and many other-sex friends were more likely to have a romantic relationship than other adolescents. Except for the Connolly and Johnson study, however, Dunphy's ideas have not been tested very extensively even though they have gained considerable prominence in discussions of adolescents' romantic relationships and his developmental progression of peer groups is widely cited in major adolescent texts (e.g., Steinberg, 1995).

One of the purposes of this study was to test Dunphy's (1963) idea that a developmental sequence occurs from small mixed-sex groups of close friends to larger networks of mixed-sex peers and then to romantic relationships. Dunphy did not elaborate on precisely how these peer structures influence the emergence of romantic relationships although he was particularly interested in the role of gender composition. One possibility is that it is the simple exposure to the other sex that is critical and the greater the proportion of other-sex peers in the network, the more likely it is that one will develop a romantic relationship. Alternatively, we thought that same-sex ties as well as other-sex ties may play an important role. Specifically, we proposed that because connections with same-sex friends and peers typically emerge earlier than other-sex ones, they may serve as the foundation for such experiences with other-sex adolescents. At the same time, we thought that it is access to other-sex adolescents that directly facilitates romantic development (Dunphy, 1963). The idea that both same- and other-sex relationships play important, yet somewhat distinct, roles is consistent with the fact that same-sex friendships still form a central core of social interaction during adolescence (Lempers & Clark-Lempers, 1993) and that some degree of gender segregation is still maintained in adolescents' social groups (Maccoby, 1990).

Dunphy (1963) focused on how the peer groups may serve as a *context* for the emergence of romantic relationships. Additionally, the *qualitative features* of relationships with very close friends may influence the qualitative features of romantic relationships. Drawing on both Sullivanian and attachment theory, Furman and Wehner (1994) proposed that the characteristics of adolescents' romantic relationships are influenced by relationships with friends as well as parents. Friends may play a particularly important role in the early and middle years of adolescence when romantic relationships are predominantly characterized by affiliative features (Furman, 1999). Consistent with these ideas, recent findings indicate that adolescents who report having supportive relationships with their close friends also report having supportive romantic

relationships (Connolly & Johnson, 1996; Shulman, Levy-Shiff, Kedem, & Alon, 1997). In fact, the links between supportive characteristics of parental and romantic relationships are less strong than those between friend and romantic relationships (Furman, 1999). Furman and Wehner (1994) also suggested that romantic relationships would be influenced by earlier romantic experiences in addition to relationships with parents and friends. Initially, adolescents might approach romantic relationships on the basis of their experiences with their parents and friends. With experience, however, the influence of previous romantic relationships should become increasingly salient. As yet, investigators have not examined the role of previous romantic experiences, but in the present investigation we examined the links among past and present relationships with friends and romantic partners.

Because this research is centrally concerned with relationship influences between previous and ongoing relationships, we used longitudinal information collected from a sample of adolescents across a 3-year time span. We explored both structural and qualitative influences, focusing first on how peer structures may influence the emergence of romantic relationships and second on how the nature of relationships with one's closest friends may influence positive and negative characteristics of romantic relationships.

## METHOD

### Participants

For the purposes of other research (McNelles & Connolly, 1999), data had been gathered on 315 of the 320 students enrolled in grade 9 in a suburban public high school in a large metropolitan area. For the current study we randomly selected a subsample of 180 adolescents (90 boys and 90 girls) to follow longitudinally. Data were obtained from 174 of these adolescents (85 boys and 89 girls) when they were enrolled in grade 10 and from 140 of them (67 boys and 73 girls) when they were enrolled in grade 11. A comparison of the adolescents who continued in the study for 3 years with those who did not revealed no pattern of differences between the two groups on either the demographic characteristics or on the variables under investigation in the study.

The average age of the adolescents in grade 9 was 14.82 years,  $SD = .48$  years. The sample was 73% European Canadian, with 15% Caribbean Canadian adolescents, 9% Asian Canadian adolescents, and 3% from other ethnocultural groups. Eighty-one percent of the adolescents lived with both of their biological parents. Of the adolescents who were not from intact

families, 14% were from stepfamilies and 15% were from single-parent families. The sample was also largely middle class: Eighty percent of the adolescents' parents had completed high school; 50% of the fathers and 43% of the mothers had some post-secondary education. Ninety-five percent of the fathers and 62% of the mothers were employed full-time outside of the home.

## Measures

*Peer networks.* To assess the composition of their peer networks, the adolescents completed a Peer Relationships Questionnaire or PRQ (Connolly & Konarski, 1994), in which they were asked to identify up to 30 teenage peers whom they perceive to constitute their social networks ("people who you like, to whom you feel close, and with whom you spend time"). Using the adolescents' responses to this questionnaire, peer networks were indexed by a frequency count of the number of same-sex adolescents listed by each participant as well as the number of other-sex adolescents listed. Though Dunphy (1963) referred to these large networks as crowds, this term is often used in contemporary research to refer to reputation-based groups (e.g., Brown, Mounts, Lamborn, & Steinberg, 1993). Hence, in this research we use the term "peer networks" and view it as an index of network size and gender composition.

*Close friend groups.* For each nomination on the PRQ, the adolescents responded to the three following questions regarding relationship closeness: (1) "Do you know this person well?" (2) "Do you consider him/her a really close friend?" and (3) "Do you and this person sometimes/often do things together on weekends and after school?" Using the adolescents' responses to these questions, a close friend was identified as one who met all three of the close relationship criteria. Additionally, nominators were reciprocated by the friend on at least two of the three criteria. Adolescents' same-sex groups were indexed by determining the number of reciprocated same-sex close friendship nominations, whereas other-sex groups were indexed by the number of reciprocated other-sex close friendship nominations. Dunphy (1963) used the term cliques to refer to these small groups of close friends. Because we did not assess the presence of overlapping ties among the reciprocated close friends, as is often done in contemporary research on cliques (e.g., Cairns, Leung, Buchman, & Cairns, 1995; Urberg, Degirmencioglu, Tolson, & Halliday-Scher, 1995) nor were we able to assess reciprocation among nonschool friends, we use the term "group" and view this measure as an index of the number of in-school close friends in adolescents' small groups.

*Relationship identification.* The participating adolescents were asked to identify three friends whom they viewed as their closest or "best" friends, as well as their current boyfriend or girlfriend, if they had one. They were instructed that their three best friends could not also be a boy/girlfriend and to omit a nomination if they did not currently have a relationship that fit into that category. In each year of the study all participants identified one best friend and almost all (95% across 3 years) identified either two or three (95% across 3 years). Many fewer (39% across 3 years) nominated a boy/girlfriend. The adolescents were assigned a score for romantic relationship status for each grade, with 0 = no romantic relationship and 1 = romantic relationship.

*Relationship characteristics.* To assess qualitative features of these relationships, the adolescents completed the Network of Relationships Inventory, or NRI (Furman & Buhrmester, 1992), for each of their best friends and for their boy/girlfriend. This instrument measures 11 relationship qualities, with 33 items rated on 5-point scales. Factor analyses of the items have indicated two broad-band dimensions of social relationships, one assessing perceptions of social support and a second assessing perceptions of negative interactions (Adler & Furman, 1988). The perception of social support factor entails instrumental aid, intimacy, nurturance, affection, reliable alliance, and admiration. The perception of negative interaction factor entails conflict and punishment. We calculated scores for perceptions of romantic social support and negative interactions for those adolescents who reported a romantic relationship. Because the scores for perceptions of social support and negative interactions were significantly correlated across the three friends, summary scores were computed by averaging the scores for the three friends ( $M\alpha s = .87$  and  $.73$ , respectively).

## RESULTS

### Peer Structures, Friendship Characteristics, and Romantic Relationships across Grades

Preliminary analyses were first conducted to assess the organization and stability of the adolescents' peer group structures and the qualitative features of their relationships from grades 9 to 11. The mean values for the structural and qualitative variables in each of the three years are shown in Table 1.

Gender differences and developmental changes in the size and composition of peer networks were assessed by using a MANOVA with gender as a between-subjects factor, grade as a repeated factor, and

**Table 1** Peer Structures and Relationship Characteristics in Grades 9, 10, and 11

	Grade 9	Grade 10	Grade 11
Networks			
Same-sex size	9.28 (4.40)	8.86 (4.54)	9.16 (4.24) <sup>a</sup>
Other-sex size	3.11 (3.12)	4.03 (4.08)	4.68 (3.95) <sup>b</sup>
Mixed-sex <sup>c</sup> proportion	.22 (.18)	.25 (.18)	.30 (.17) <sup>a,b</sup>
Close friend groups			
Same-sex size	2.26 (1.76) <sup>a</sup>	1.14 (1.70) <sup>a</sup>	2.16 (1.76) <sup>a,b</sup>
Other-sex size	.30 (.79)	.27 (.68)	.36 (.81)
Mixed-sex <sup>c</sup> proportion	.07 (.18)	.14 (.30)	.11 (.21) <sup>a,b</sup>
Relationship characteristics			
Friend support	3.49 (.64)	3.52 (.59) <sup>a</sup>	3.69 (.64) <sup>a,b</sup>
Friend negative interaction	1.68 (.55)	1.64 (.48)	1.63 (.54)
Romantic support	3.75 (.73)	3.98 (.75)	4.02 (.77)
Romantic negative interaction	1.76 (.74)	1.69 (.72)	1.83 (.69)
Romantic relationship status (% of subjects reporting a romantic relationship)			
	30%	41%	43% <sup>b</sup>

Note: In grade 9,  $N = 180$ ; in grade 10,  $N = 174$ ; in grade 11,  $N = 140$ . For mixed-sex close friends,  $N_s = 150, 125, \text{ and } 120$ , respectively. Standard deviations are in parentheses.

<sup>a</sup> Gender difference.

<sup>b</sup> Grade effect.

<sup>c</sup> Expressed as a proportion of other-sex to total.

type of network (same-sex, other-sex) as a second repeated factor. Significant multivariate effects were found for gender, Wilks's  $\lambda F(1, 138) = 5.998, p < .05$ , and for network type, Wilks's  $\lambda F(1, 138) = 379.58, p < .001$ . A significant interaction between grade and network type was also found, Wilks's  $\lambda F(2, 137) = 11.36, p < .001$ . With regard to gender, the girls reported significantly larger networks than the boys across the grades: overall  $M_s = 14.30 (SD = 4.02)$  versus  $11.98 (SD = 4.06), F(1, 138) = 6.07, p < .01$ . Post hoc ANOVAS of the grade changes, conducted separately for same- and other-sex networks, indicated that other-sex networks showed a significant increase in size at each grade,  $F(2, 138) = 11.69, p < .001$ , whereas the size of same-sex networks remained constant across grades,  $F(2, 138) = .99, ns$ . These values are shown in Table 1.

To index the proportion of same- and other-sex peers in adolescents' networks, we computed a mixed-sex network score as the proportion of other-sex peers in the total network. The means for this proportion are shown in Table 1. A Grade  $\times$  Gender ANOVA of mixed-sex networks indicated a significant effect for grade,  $F(2, 137) = 17.24, p < .001$ , moderated by a significant interaction between grade and gender,  $F(2, 137) = 3.22, p < .05$ . Post hoc ANOVAS of the boys and girls separately indicated that the proportion of other-sex peers in girls' networks increased with each grade:  $M_s = .21 (SD = .17), .25 (SD = .16)$ , and  $.33 (SD = .17)$ . For boys, an increase in the pro-

portion of other-sex peers in the network occurred from grade 9 to grade 10,  $M_s = .20 (SD = .17)$  versus  $.26 (SD = .21)$  but not in grade 11,  $M = .27 (SD = .18)$ .

For the close friend group measures, a comparable Gender  $\times$  Grade  $\times$  Group Type (same-sex, other-sex) MANOVA was conducted and significant multivariate effects were found for grade, Wilks's  $\lambda F(2, 137) = 40.24, p < .001$ ; gender, Wilks's  $\lambda F(1, 138) = 5.87, p < .05$ ; and group type, Wilks's  $\lambda F(1, 138) = 227.46, p < .001$ . Significant interactions were found between grade and group type, Wilks's  $\lambda F(2, 137) = 27.26, p < .001$ , and between gender and group type, Wilks's  $\lambda F(2, 137) = 27.26, p < .001$ . ANOVAS conducted to explore the gender interaction with group type indicated that girls' same-sex small groups were larger than those of the boys across the grades: overall  $M_s = 2.22 (SD = 1.60)$  versus  $1.48 (SD = 1.46), F(1, 138) = 13.71, p < .05$ . The girls and boys did not differ in size of other-sex small groups: overall  $M_s = .23 (SD = .35)$  versus  $.39 (SD = .72), F(1, 138) = 3.08, ns$ . Both boys and girls reported more same-sex than other-sex close friends: overall  $M_s = 1.48 (SD = 1.46)$  versus  $.40 (SD = .92)$  for boys;  $2.21 (SD = 1.59)$  versus  $.23 (SD = .55)$  for girls. ANOVAS conducted to explore the grade interaction indicated that a significant decline in the size of same-sex small groups occurred between grades 9 and 10,  $F(2, 138) = 49.26, p < .001$  (means shown in Table 1). Other-sex groups did not change with grade,  $F(2, 138) = 2.93$ .

Similar to the mixed-sex network score described above, we calculated a mixed-sex close friends group score as the proportion of other-sex to total friends to reflect the merging of gender in them. The values for each grade are shown in Table 1. A Grade  $\times$  Gender ANOVA was computed for the 87 adolescents who received a mixed-sex score in each of the 3 years. The results indicated significant effects for grade, Wilks's  $\lambda$   $F(2, 84) = 3.68, p < .05$ , and for gender, Wilks's  $\lambda$   $F(1, 85) = 7.50, p < .01$ . Mixed-sex small groups increased in size from grade 9 to grade 10 but not from grade 10 to grade 11. Overall, the proportion of other-sex friends was greater in boys' mixed-sex groups than it was in those of the girls,  $M = .20 (SD = .29)$  versus  $.10 (SD = .18)$ .

Gender and developmental effects on the perceptions of support and negative interactions were assessed with a series of ANOVAS. These were conducted for the close friend scores and the romantic relationship scores separately because not all adolescents had romantic scores. Moreover, for the friend analyses we did not distinguish between those of the same and other sex because only 15 adolescents had an other-sex friend in each of the 3 years. For close friend support, significant effects were found for gender,  $F(1, 138) = 11.52, p < .001$ , and grade,  $F(2, 137) = 10.74, p < .001$ . Compared with the boys, the girls reported greater friendship support across the grades:

overall  $M_s = 3.70 (SD = .58)$  versus  $3.41 (SD = .64)$ . Perceptions of close friendship support increased significantly from grade 10 to grade 11. Perceptions of negative interactions did not differ by gender or grade. The ANOVAS for perceptions of support and negative interactions in romantic relationships did not reveal any significant effects for either gender or grade.

Finally, a log linear analysis indicated that the percentage of adolescents reporting a romantic relationship increased significantly between grades 9 and 10,  $\chi^2(1, N = 140), = 11.94, p < .001$ , but not between grades 10 and 11 (see Table 1). The percentage of boys and girls reporting a romantic relationship was comparable in grades 9 and 10. In grade 11, more of the girls reported a romantic relationship (52%) than the boys (33%),  $\chi^2(1, N = 140) = 5.27, p < .01$ .

The temporal stability of these variables was examined by means of correlations computed across the three grade intervals. These cross-year correlations are shown in Table 2. As can be seen, there was a moderately high degree of stability in same-, other-, and mixed-sex peer networks; in same-, other-, and mixed-sex close friend groups; and in perceptions of friendship quality. Romantic relationship quality likewise showed moderate consistency across all grades although the reduced sample available for these analyses suggests that caution should be exercised in comparing their stability with that of the friendship variables.

**Table 2** Stability of Peer Structures and Relationship Characteristics across Three Years

	Correlations Across Grades		
	Grade 9– Grade 10	Grade 10– Grade 11	Grade 9– Grade 11
<b>Networks</b>			
Same-sex size	.40**	.43**	.34**
Other-sex size	.57**	.61**	.41**
Mixed-sex proportion	.57**	.59**	.35**
<b>Close friend groups</b>			
Same-sex size	.50**	.42**	.34**
Other-sex size	.36**	.40**	.21**
Mixed-sex proportion	.46**	.30**	.25**
<b>Relationship characteristics</b>			
Friend support	.46**	.69**	.50**
Friend negative interaction	.45**	.50**	.37**
Romantic support	.52**	.55**	.67**
Romantic negative interaction	.34**	.63**	.43*
Romantic relationship status	.35**	.43**	.30**

Note: The  $N_s$  for the structural variables and friendship quality ranged from 140 to 174, except for mixed-sex close friends, which required the participant to have at least one other-sex close friend in both years and ranged from 95 to 112. The  $N_s$  ranged from 24 to 39 for the romantic relationship quality variables, which required that the participant be involved in a relationship during both years.

\*  $p < .05$ ; \*\*  $p < .01$ .

There was also some degree of consistency among those who reported a romantic relationship across the three grades. To more fully understand whether this consistency arose because the relationship endured across more than 1 year, we examined the degree of stability in the person nominated. Romantic relationships did not often last from one grade to the next. Only four adolescents (8%) reported the same romantic relationship in grades 9 and 10, whereas eleven (19%) reported the same person in grades 10 and 11. Although particular relationships were not stable, individuals who were involved in a romantic relationship in one grade were much more likely to be involved in one in the following year than those who had not been involved. In particular, 69% of the ninth graders with a romantic relationship had one in the tenth grade, whereas only 31% of those who didn't have one in the ninth grade had one in the tenth grade. Similarly, 68% of those with one in the tenth grade had one in the eleventh grade, but only 25% of those who had not had one in the tenth grade had one subsequently. These results suggest that the consistency observed in romantic relationship status resides more in the individual than in the relationship. Despite this instability in romantic relationships, however, previous romantic partners were sometimes maintained as members of the peer network. In grade 10, 19% of the previous grade's romantic partner continued to be a member of the peer network and in grade 11, 18% of previous romantic partners were indicated as members of the network.

The transient nature of these adolescents' romantic relationships may be contrasted to the greater stability of best friends; 55% of the adolescents' three closest friends in Grade 9 were in their networks in grade 10 with 35% continuing to be one of their three closest friends; similarly, 77% of those in grade 10 were still in the network in grade 11, with 50% continuing as one of the closest friends.

### Peer Group Structures and Romantic Relationships

Table 3 presents the correlations between close friend groups and peer networks in each grade. Consistent with Dunphy's (1963) predictions, there is a significant pattern of correlation between them. The number of same-sex and other-sex close friends was associated with same- and other-sex network size, across all three grades. The size of mixed-sex close friend groups was highly associated with the size of other-sex networks but not with same-sex ones. The size of same- and other-sex small groups was significantly correlated only among the youngest adolescents, whereas the correlations between size of same- and other-sex networks were significant in each of the 3 years. Finally, the correlations between same-sex group size and that of the other-gendered network were largely nonsignificant.

Our next step was to determine whether these peer structures were predictive of whether one had a romantic relationship or not. We calculated the correlations of the group and network variables with both concurrent and subsequent romantic status. As shown in Table 4, the correlations revealed that the two indices of the number of other-sex peers in one's network were positively related to having a romantic relationship, both within and across grades. In contrast, none of the indices of same-sex peers or of small groups were consistent predictors of romantic relationships, although grade 9 same-sex close friend groups did predict romantic relationship status in grade 11. Some of the adolescents had included their current romantic partner in their friendship list for each grade. Excluding this person from the other-sex networks and other-sex close friends did not alter the correlations in any way.

To examine simultaneously the hypothesized links between close friend groups, peer networks, and romantic relationships, we specified paths between these variables that we then tested with structural equation modeling (LISREL). First, we focused on

**Table 3** Intercorrelations among Peer Structure Variables

	Other-Sex Networks	Mixed-Sex Networks	Same-Sex Close Friends	Other-Sex Close Friends	Mixed-Sex Close Friends
Same-sex networks	.47**	.11	.40**	.14	.05
Other-sex networks		.82**	.26*	.36**	.29**
Mixed-sex networks			.11	.31**	.37**
Same-sex close friend groups				.22*	-.06
Other-sex close friend groups					.84**

Note:  $N = 180$  (150 for mixed-sex close friend groups). Data are drawn from grade 9.

\* $p < .05$ ; \*\* $p < .01$ .

**Table 4 Prediction of Romantic Relationship Status from Peer Networks and Close Friend Groups, within and across Year**

	Romantic Relationship Status		
	Grade 9	Grade 10	Grade 11
Grade 9			
Same-sex network	.13	.05	.16
Other-sex network	.30**	.27**	.19*
Mixed-sex network	.36**	.33**	.23**
Same-sex close friend group	.05	.11	.21*
Other-sex close friend group	.08	.16	-.05
Mixed-sex close friend group	.13	.15	-.11
Grade 10			
Same-sex network		-.01	.11
Other-sex network		.26**	.23**
Mixed-sex network		.36**	.29**
Same-sex close friend group		.07	.12
Other-sex close friend group		.14	.08
Mixed-sex close friend group		.06	.04
Grade 11			
Same-sex network			-.04
Other-sex network			.24**
Mixed-sex network			.31**
Same-sex close friend group			.06
Other-sex close friend group			.07
Mixed-sex close friend group			.03

Note: *Ns* vary from 102 to 180.  
 \**p* < .05; \*\**p* < .01.

mixed-sex groups and networks to test whether a sequence occurs from size of mixed-sex groups of close friends in grade 9 to size of mixed-sex networks in grade 10, to romantic relationships in grade 11. This model is shown graphically in Figure 1.

Second, we tested a sequence similar to that of Model 1 but one in which the distinction between same- and other-sex groups and networks was added. That is, in this second model we specified additional paths from same-sex to other-sex groups such that size of same-sex close friend groups in grade 9 was a predictor of grade 9 other-sex close friend group size and same-sex network size in grade 10 was a predictor of grade 10 other-sex network size. Finally, this model predicates that the size of grade 10 other-sex networks has a direct effect on subsequent romantic relationship status, whereas same-sex networks do not. This model is shown graphically in Figure 2.

To conduct these LISREL analyses, it was necessary to create a continuous variable for romantic relationship status because LISREL is limited in its capability to process dichotomous variables. We derived this variable by using the companionship rating from the NRI for the romantic relationship. Adolescents who did not have a romantic relationship in grade 11 were assigned a value of 0, as before, and those who

did have a romantic relationship in grade 11 were assigned the value of their companionship rating in this relationship. These scores were found to be highly correlated with the dichotomized status variable,  $r(138) = .97$ . To normalize the distribution, romantic companionship scores were transformed by using a logarithmic transformation.

The LISREL analysis of the first model, in which mixed-sex groups and networks are examined, did not provide an acceptable fit to the data,  $\chi^2(1, N = 140) = 6.95, p < .001$ ; root mean square residual (RMSR) = .05; Adjusted Goodness of Fit Index (AGFI) = .78; Normed Fit Index (NFI) = .78, although the parameter estimates for the hypothesized paths were both significant (see Figure 1).

The results of the LISREL analysis for the second model (shown in Figure 2), in which distinct pathways were specified for same- and other-sex groups and networks, did provide a good fit to the data,  $\chi^2(5, N = 140) = 9.80, ns$ , RMSR = .17, AGFI = .92, NFI = .84. All of the hypothesized paths yielded significant parameter estimates, although the link from the number of grade 9 same-sex close friends to grade 10 same-sex network size was only marginally so ( $p < .07$ ).

Because we had found evidence of differences between the boys and girls in the size of their close friend

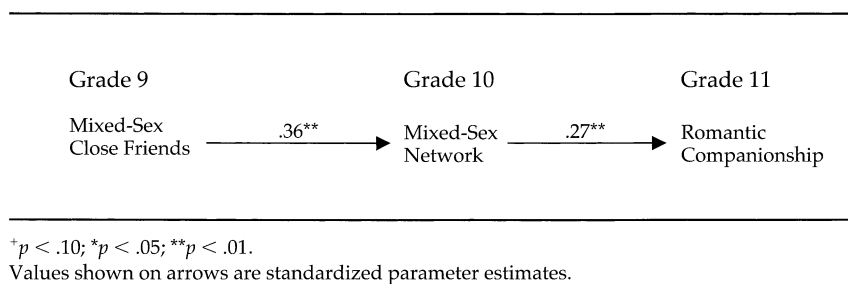


Figure 1 LISREL model of the sequencing of mixed-sex close friend groups in grade 9, mixed-sex networks in grade 10, and romantic companionship in grade 11.

groups and networks, we thought it prudent to assess whether the target model would fit if the boys and girls in the sample were studied separately. LISREL analyses run separately by gender indicated that the target model fit the boys' data,  $\chi^2(5, N = 67) = 7.17, ns$ , RMSR = .10, AGFI = .88, and NFI = .83, and the girls' data,  $\chi^2(5, N = 73) = 6.00, ns$ , RMSR = .20, AGFI = .91, and NFI = .89.

To provide further support for this model, two alternatives were tested in which key paths were reversed. In the first alternative model, the ordering of close friend groups and networks was reversed such that same- and other-sex networks in grade 9 were hypothesized to have a direct effect on the number of close friends in grade 10, which in turn affected romantic status in grade 11. In the second alternative model, the direction of effects between same- and other-sex was reversed such that the size of other-sex close friend groups in grade 9 was hypothesized to have a direct effect on the size of concurrent same-sex close friend groups and the size of

other-sex networks in grade 10 was hypothesized to have a direct effect on concurrent same-sex networks, which was hypothesized to have a direct effect on grade 11 romantic relationships. Neither of these alternative models provided a good fit to the data. For alternative 1:  $\chi^2(5, N = 140) = 12.65, p < .05$ , RMSR = .17, AGFI = .89, and NFI = .79. For alternative 2:  $\chi^2(5, N = 140) = 21.99, p < .001$ ; RMSR = .26, AGFI = .83, NFI = .76.

### Qualitative Features of Friendships and Romantic Relationships

Next, we considered the pattern of relations among support and negative interactions in friendships and romantic relationships. Ratings of closest friendships were available for all of the participants in all grades, but in each of the grades only 34, 57, and 60 of the 140 participants had a romantic relationship to rate and only 17 adolescents had a ro-

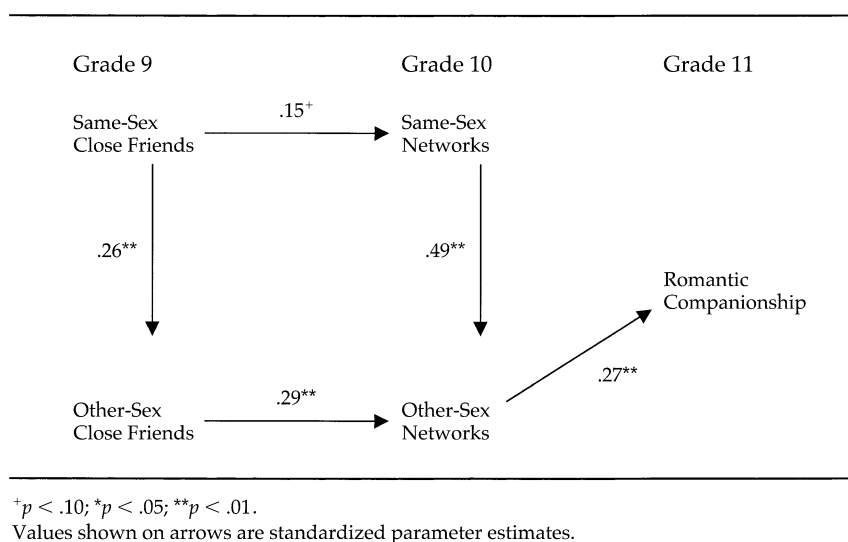


Figure 2 LISREL model of the sequencing of same- and other-sex close friend groups in grade 9, same- and other-sex networks in grade 10, and romantic companionship in grade 11.



mantic relationship in all 3 years. Many more participants had a romantic relationship in 2 out of the 3 years and so, to maximize the number of participants who could be used in a longitudinal analysis, we created a pooled data set by combining the scores for participants who had romantic relationships in grade 9 and grade 10 only ( $n = 32$ ) with the set of scores for participants who had romantic relationships in grade 10 and grade 11 only ( $n = 20$ ). In this way a set of scores was generated for 52 adolescents, all of whom had romantic data and friendship data from two points in time, 1 year apart. For those adolescents who had a romantic relationship in all three years, we selected only their grade 9–grade 10 scores for these analyses. The resulting correlation matrices, which are shown in Table 5, closely resembled the matrices that would have been obtained if we had included all pairs of data (e.g. including both the 9–10 and the 10–11 scores for those who had relationships in all 3 years); the matrices also resembled the “uncombined” correlations of scores for grades 9, 10, and 11.

As shown in Table 5, perceptions of relationship qualities were highly stable across a 1-year span. As well, perceptions of friendship and romantic relationship qualities were significantly correlated at each time point. Finally, perceptions of friendship at Year 1 were predictive of the corresponding perceptions of romantic relationships at Year 2, but perceptions of romantic relationships at Year 1 were not predictive of perceptions of friendships at Year 2.

To examine the hypothesized links between friend and romantic relationship characteristics, we used multiple regression analyses to predict romantic relationship quality at Year 2 from friend and romantic qualities at Year 1. In these analyses we tested the hypothesis that previous romantic rela-

tionship qualities have a direct effect on subsequent romantic relationship qualities, whereas previous friendship qualities have an indirect effect that is mediated by previous romantic relationship qualities. We employed Baron and Kenny’s (1986) strategy of assessing mediational effects through multiple regression analyses in which the dependent variable (in this case romantic relationship qualities at Year 2) is predicted from the independent variable (friendship at Year 1) by itself and then with the mediating variable (romantic relationship at Year 1) included as well. In particular, we conducted an initial regression analysis in which we predicted romantic relationship quality at Year 2 from previous friend quality and then a second one in which romantic relationship at Year 1 was added. Mediational effects can be inferred when the presence of the mediator reduces the predictive value of the independent variable by itself.

These analyses were conducted separately for social support and negative interactions and the results supported the mediational effect of prior romantic relationships. As can be seen graphically in Figure 3 and Figure 4, friend characteristics at Year 1 are a significant predictor of romantic characteristics at Year 2 for both support and negative interactions. When romantic characteristics at Year 1 are also included, the effect of previous friendship characteristics are fully mediated by previous romantic ones.

#### Correlations Between Relationship Quality and Structural Characteristics of the Network

The preceding analyses are implicitly based on a presumption of independence between the peer structure and relationship quality variables. To examine the possibility of linkages between the structural and qualitative variables, we conducted a series of correlations between romantic relationship status and relationship quality and between peer structures and romantic relationship quality. The results were almost uniformly nonsignificant. Romantic relationship status was unrelated to romantic quality in the preceding grade and did not predict subsequent romantic quality. Romantic relationship status was unrelated to either concurrent or subsequent friendship quality with the exception of concurrent correlations with friend support in grade 9,  $r(138) = .23, p < .05$ , and grade 11,  $r(138) = .21, p < .05$  and a predictive relation from friend support in grade 9 to romantic status in grade 10,  $r(138) = .23, p < .05$ . Similarly, the matrix of concurrent and longitudinal correlations of the four peer structure variables with romantic support and neg-

**Table 5** Correlations between Perceptions of Friend and Romantic Relationship Quality, within and across Year

	Year 1 Romantic	Year 2 Friend	Year 2 Romantic
Support			
Year 1 friend	.38**	.54**	.38**
Year 1 romantic		.14	.64**
Year 2 friend			.29*
Negative interaction			
Year 1 friend	.35**	.49**	.35**
Year 1 romantic		.04	.51**
Year 2 friend			.34**

Note:  $N = 52$ .  
\*  $p < .05$ ; \*\*  $p < .01$ .

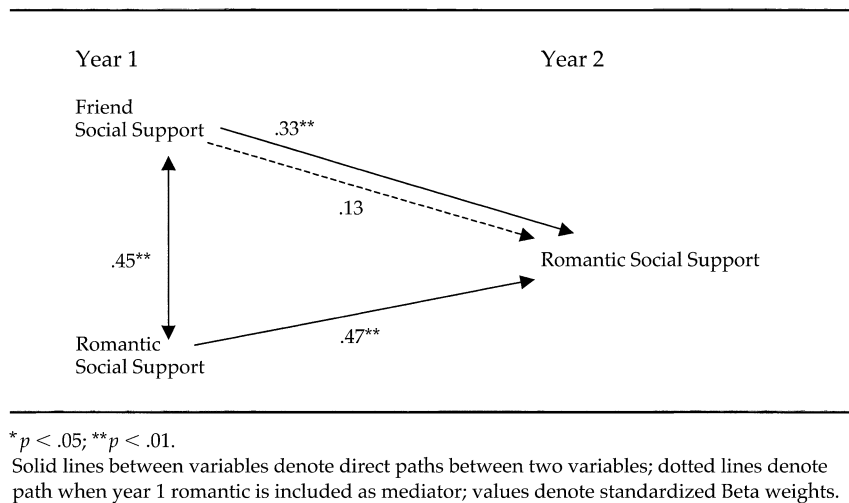


Figure 3 Mediation regression analyses of friends and romantic relationships on later romantic social support.

ative interaction quality revealed an overall pattern of nonsignificant results in which only 4 out of the 62 correlations were significant ( $p < .05$ ).

DISCUSSION

The objective of this study was to examine adolescents' romantic relationships within the context of their peer groups. We hypothesized that the structural characteristics of adolescents' peer groups may influence the initiation of romantic relationships and that the qualitative features of friendships may influence the qualitative features of romantic relationships. The results were consistent with our formulations.

Our first goal in this study was to test Dunphy's (1963) proposals about adolescents' peer groups and how romantic relationships are embedded within them. Dunphy was largely silent in discussing the operative features of mixed-sex groups and so we tested two possibilities. A first model in which we simply examined the degree to which close friend groups and networks were mixed in gender did not yield a fully satisfactory fit to the data. The presence of significant pathways between groups, networks, and romantic relationships, however, was suggestive of the validity of the overall sequence despite the poor fit of the model. It appeared that important distinctions between the functions of same- and other-

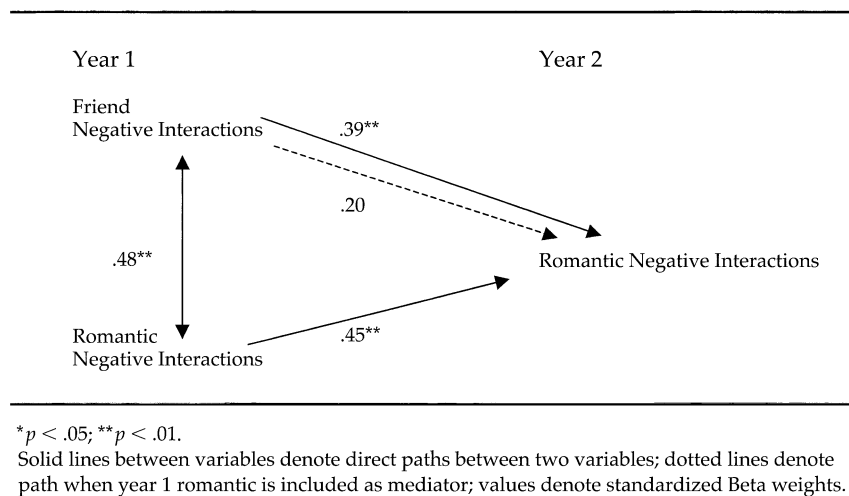


Figure 4 Mediation regression analyses of friends and romantic relationships on later romantic negative interactions.

sex adolescents are obscured when mixed-sex scores are employed. In fact, the results revealed an excellent fit of our second model, which took into account the distinctive roles of ties with other- and same-sex adolescents and particularly emphasized the size of the other-sex peer network in predicting romantic companionship.

Consistent with past work (Blyth et al., 1982), the number of other-sex peers in the network differentially increased over the course of the 3 years. In turn, the number of other-sex peers was associated with having a romantic relationship both concurrently and in subsequent years. The structural modeling revealed a significant direct path between the size of the other-sex peer network in grade 10 and romantic companionship in grade 11. Having a large number of other-sex peers may facilitate the emergence of romantic relationships in several different ways. First, adolescents may date other-sex peers in their network and go on to develop a romantic relationship with one of them. In the present study, 8% of the new romantic relationships in grade 11 were with individuals who had been in the network the previous year. Thus, a romantic relationship with an adolescent in one's network may occur, although the low proportion suggests that the typical romantic partner may not have been in the network very long. Accordingly, it seems that the network of other-sex peers more commonly facilitates the emergence of romantic relationships in a somewhat different manner. Adolescents seem to meet potential partners they do not already know through their interactions with other-sex peers they do know. Alternatively, individuals with a large number of other-sex peers in their network may be more interested in establishing romantic relationships or may be more able to establish romantic relationships. We found that adolescents with larger networks of other-sex peers also had more other-sex close friends. Perhaps these youth are most able to translate the social skills acquired in close friendships into the romantic context.

The size of one's same-sex network showed a different developmental trend and played a somewhat different role in the emergence of romantic relationships. Unlike other-sex networks, same-sex networks did not increase across the 3 years and indeed, the number of same-sex close friends actually decreased. Also unlike the other-sex network, it was not significantly related to either concurrent or subsequent romantic status. Moreover, the models in which direct ties were included from same-sex networks to romantic companionship did not provide a good fit to the data. On the other hand, we found that the size of one's same-sex network in the tenth grade was pre-

dictive of the size of the other-sex network concurrently, which in turn was predictive of involvement in a romantic relationship in the eleventh grade. The network of same-sex friends, then, appears to play an indirect role in the emergence of romantic relationships through its link with other-sex networks, which appear to be the factor most directly linked to the initiation of a romantic relationship.

The comparison of different models suggests that involvement in a romantic relationship may be more related to the size of the networks in the tenth grade than to groups of close friends at that time. The size of the same- and other-sex close friend groups in the ninth grade were, however, predictive of the size of the networks in the tenth grade. This sequence seems consistent with Dunphy's (1963) ideas that same-sex cliques of boys and girls merge to form mixed-sex crowds. Our measures of groups and networks are, however, indices of size and gender composition and so measure only certain aspects of cliques and crowds. In future work it would be useful to include recently developed methodologies that take into account multiple ties among members.

The present results suggest, however, that some modification of Dunphy's (1963) ideas is required in that it appears that same- and other-sex peers do not fully merge into a mixed-sex network. Indeed, same- and other-sex networks showed many distinct patterns. The size of the other-sex network had a direct effect on the emergence of romantic relationships, whereas the same-sex network had an indirect effect. Additionally, almost all of the adolescents (97% across all 3 years) had more same-sex peers in their network than other-sex peers, which suggests that the same-sex relationships are a primary reference group for middle adolescents, perhaps because gender-specific patterns of interaction continue into adolescence. Overall, then, our results both support and extend Dunphy's original views of the functions of adolescent peer groups and provide evidence of the manner in which structural changes in social context can facilitate important developmental transitions.

Our second goal was to examine how the qualitative features of friendships may be linked to similar features of interaction in romantic relationships. Previous research has identified contemporaneous links between friend and romantic characteristics (Connolly & Johnson, 1996; Furman & Wehner, 1994). We sought to determine whether these associations occurred longitudinally as well as to understand the role of previous romantic relationships on future relationships. Consistent with previous findings, our results indicate that perceptions of support and neg-

ative interactions in friendships are associated with similar characteristics in concurrent romantic relationships. Moreover, perceptions of friendships at one point in time were predictive of romantic relationships at a second point in time a year later. The mediational analyses, however, suggested that this was not a direct effect. Instead it appeared that the friendships may have an influence on contemporaneous romantic relationships, which in turn are predictive of subsequent romantic experiences. These links between perceptions of romantic relationship qualities at one time and those at a subsequent time highlight the importance of romantic relationships in shaping subsequent experiences or at least perceptions of such experiences (Furman & Flanagan, 1997). The relatively high stability correlations and path coefficients are particularly noteworthy: approximately 80% of the adolescents had new partners and thus the findings do not simply reflect consistency in perceptions of the same relationship.

Our findings also highlight the independence of relationship characteristics and structural characteristics. Whereas peer structures supported the emergence of romantic relationships, they bore no relation to the quality of those relationships. Likewise, romantic relationship status did not influence the quality of those relationships, either concurrent or subsequent. These findings are consistent with the distinction that has been made between the timing of romantic relationships and their quality (Furman & Wehner, 1994). Peer networks create a context in which romantic relationships can develop and adolescents' participation in these networks can influence the timing and emergence of their romantic relationships. Other factors must be considered when the quality of the relationships is under examination. Specifically, previous and current relationships with friends and romantic partners appear to carry the explanatory weight.

Taken together, the findings from the present and other studies (Feiring, 1996; Furman, 1999) demonstrate that affiliation with peers contributes to the development of adolescent heterosexual romantic relationships. In fact, the affiliative and sexual systems are thought to be the first behavioral systems to emerge with romantic partners; the attachment and caregiving systems are usually expected to emerge later in development, in longer-term relationships (Furman & Wehner, 1994, 1997). Thus, the patterns of affiliative behavior that occur in interactions with other adolescents may play a particularly important role in funneling adolescents' attention on romantic partners and providing initial models for relationship expectations.

Although these studies suggest that peers and friends may play several roles in shaping romantic relationships, the specific nature of such influences may vary as a function of the particular cultural context. The present sample was largely European Canadian, middle class, and heterosexual and one which seemed to foster romantic relationships. Male gangs in low income neighborhoods have been described as discouraging or even ridiculing any but the shortest of romantic relationships (Anderson, 1990). Similarly, heterosexual peer groups discourage and disapprove of gay and lesbian relationships, and thus, a description of the emergence of homosexual relationships may require a different account of peer influences. Finally, relatively few adolescents were involved in long-term relationships, which is what one would expect because these relationships are just emerging in this developmental period. The nature of the links with peers may vary, however, as a function of the length of the relationship; in fact, other work has shown that the links between perceptions of parent-adolescent relationships and romantic relationships vary as a function of the duration of the romantic relationship (Connolly & Johnson, 1996).

It is important to emphasize that romantic relationships are likely to influence peer relationships as well. Romantic relationships may influence the makeup of the peer network as romantic partners introduce new adolescents to the group and new roles that were previously played by other peers are adopted. Moreover, even though we and others (Connolly & Johnson, 1996; Feiring, 1996) have found that romantic relationships are not likely to endure across grades, past romantic partners do not necessarily disappear completely from the social picture. A sizable minority of adolescents maintained previous romantic partners as members of their peer networks in subsequent years. Finally, although we found no links between the characteristics of romantic relationships in one year and friendship qualities in the subsequent year, it is possible that such links may be found on other variables. For example, some boys have new opportunities to self-disclose in romantic relationships, which might well lead to increased conversational intimacy with friends. Perhaps when romantic relationships become more established and long term in nature, their influence on peer relationships may be more apparent.

In conclusion, most theoretical accounts of romantic relationships have emphasized the role of parents in shaping romantic relationships, but the present findings suggest that both peer relationships and past romantic relationships may also play an important role in

shaping romantic expectations and developing social skills. A comprehensive account of romantic relationships will require taking into account the many factors involved in their emergence and development.

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